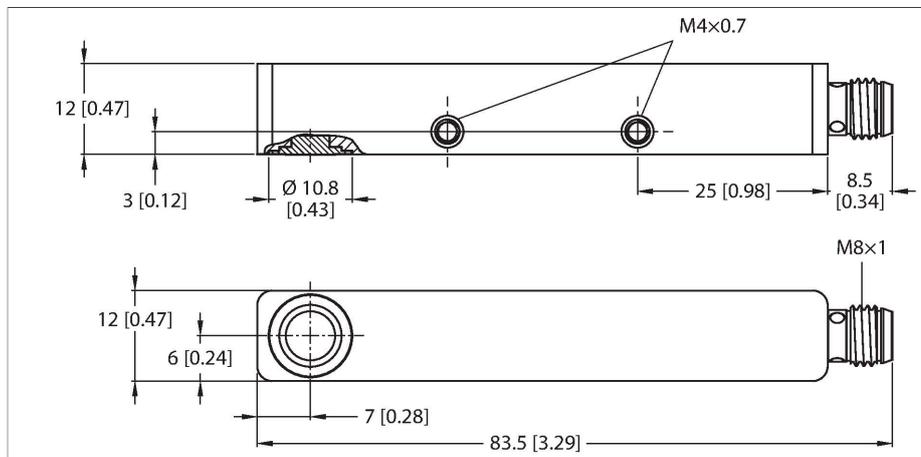


RU40L-Q12S-UP8X-V1141

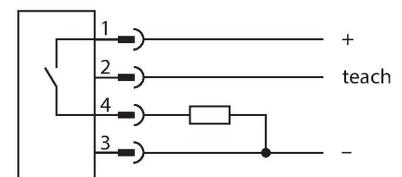
Ultrasonic Sensor – Retroreflective Sensor



Features

- Smooth sonic transducer face
- Rectangular housing Q12S, potted
- Lateral light emission
- Connection via M8 × 1 male connector
- Teach range adjustable via connection cable or via IO-Link
- Blind zone: 4 cm
- Range: 40 cm
- Resolution: 1 mm
- Aperture angle of sonic cone: ±9 °
- 1 x switching output, PNP
- Teachable settings
- NO/NC programmable

Wiring diagram



Functional principle

Ultrasonic sensors capture a multitude of objects contactlessly and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or non-metallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.

Technical data

| | |
|--------------------------------|-------------------------|
| Type | RU40L-Q12S-UP8X-V1141 |
| ID | 100005612 |
| Ultrasonic data | |
| Function | Retroreflective Sensor |
| Range | 40...400 mm |
| Resolution | 1 mm |
| Minimum switching range | 5 mm |
| Ultrasound frequency | 300 kHz |
| Repeat accuracy | ≤ 0.125 % of full scale |
| Temperature drift | ± 1 % of full scale |
| Linearity error | ≤ ± 0.8 % |
| Approach speed | ≤ 3 m/s |
| Pass speed | ≤ 1 m/s |
| Electrical data | |
| Operating voltage | 18...30 VDC |
| Residual ripple | 10 % U _{ss} |
| No-load current | ≤ 40 mA |
| Load resistance | ≤ 1000 Ω |
| Residual current | ≤ 0.1 mA |
| Response time typical | < 100 ms |
| Readiness delay | ≤ 300 ms |
| Communication protocol | IO-Link |
| Output function | NO/NC, PNP |
| Output 1 | Switching output |
| Switching frequency | ≤ 10 Hz |
| Hysteresis | ≤ 2 mm |
| Voltage drop at I _o | ≤ 2 V |

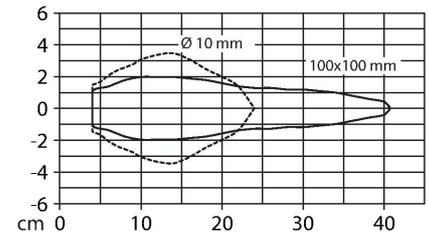
Technical data

| | |
|--------------------------------------|---|
| Short-circuit protection | yes |
| Reverse polarity protection | yes |
| Setting option | Remote Teach |
| IO-Link | |
| IO-Link specification | V 1.1 |
| IO-Link port type | Class A |
| Communication mode | COM 2 (38.4 kBaud) |
| Process data width | 16 bit |
| Measured value information | 15 bit |
| Switchpoint information | 1 bit |
| Frame type | 2.2 |
| Minimum cycle time | 2 ms |
| Function pin 4 | IO-Link |
| Function Pin 2 | DI |
| Maximum cable length | 20 m |
| Profile support | Smart Sensor Profile |
| Included in the SIDI GSDML | Yes |
| Mechanical data | |
| Design | Rectangular, Q12 |
| Radiation direction | side |
| Dimensions | 82 x 12 x 12 mm |
| Housing material | Metal, AL, Anodized |
| Transducer material | Plastic, Epoxyd resin and PU foam |
| Electrical connection | Connector, M8 x 1, 4-wire |
| Ambient temperature | -25...+70 °C |
| Storage temperature | -25...+70 °C |
| Pressure resistance | 0.5...5 bar |
| Protection class | IP67 |
| Switching state | LED, Yellow |
| Tests/approvals | |
| MTTF | 575 years acc. to SN 29500 (Ed. 99) 40 °C |
| Declaration of conformity EN ISO/IEC | EN 60947-5-2 |
| Shock test | Shock/vibration according to EN 60947-5-230 g, 11 ms/10...55 Hz, 1.0 mm |
| Approvals | CE cULus |

The sonic cone diagram indicates the detection range of the sensor. In accordance with standard EN 60947-5-2, quadratic targets in a range of sizes (20 × 20 mm, 100 × 100 mm) and a round rod with a diameter of 27 mm are used.

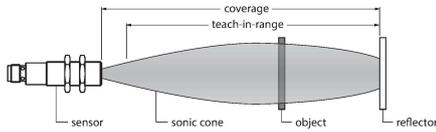
Important: The detection ranges for other targets may differ from those for standard targets due to the different reflection properties and geometries.

Sonic Cone



Mounting instructions

Mounting instructions/Description



Teaching the reflector position

The ultrasonic sensor features a switching output with a teachable switching range. The yellow LED indicates whether the sensor has detected the object.

A switching range is taught in. This must be within the detection range. In this operating mode, the taught reflector position is detected permanently without an object.

Easy-Teach

- Stationary reflector within the detection range
- Bridge pin 2 (BK) with the Ub for 2 seconds
After a successful teach-in, the yellow LED flashes at 3 Hz and the sensor runs automatically in normal mode.
- To invert the output function, bridge pin 2 with the Ub for 2...7 seconds

LED response

In normal operating mode, the LED signals the switching state of the sensor.

- Yellow: object between the sensor and reflector

Accessories

| Dimension drawing | Type | ID | |
|-------------------|---------------------|---------|--|
| | PKG4M-2/TEL | 6625061 | Connection cable, M8 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |
| | PKW4M-2/TEL | 6625067 | Connection cable, M8 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |
| | PKG4M-2-RSC4.4T/TXL | 6627063 | Extension cable, M8 female connector, straight, 4-pin to M12 male connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval |

Accessories

| Dimension drawing | Type | ID | |
|-------------------|--------------|---------|--|
| | TBEN-S2-4IOL | 6814024 | Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A |

| Dimension drawing | Type | ID | |
|---|----------------|---------|---|
|  | USB-2-IOL-0002 | 6825482 | IO-Link Master with integrated USB port |

